

## **Authentication: "I Know You"**

Michael J. Corby, CCP, CISSP  
M Corby & Associates, Inc.

*Audience: Security Knowledgeable with varying backgrounds*

### **Summary:**

Increasingly more mission critical, company sensitive and personal information is being stored on computers every second of every day. Ever since computers “came out of the data center”, users have clamored for easier applications, faster access time and more comprehensive databases of information. As security professionals, we are faced with the demands of the users and the use of prudent practices to protect data from falling into unauthorized hands. Our response has been: “If we know who you are, we can give you what you want.” Ah, but there’s the rub! How does the computer know who you are. Do user ID’s and Passwords, which have been around for decades, really work? This informative session will present some basic theory behind user identification and authentication and review several methods and products available to help assure us that the computer really does “know who you are”.

### **Speaker Biography**

Mr. Corby is CEO and Consulting Director for M Corby & Associates, Inc. a US Consultancy founded in 1989. He has been an IT Professional for over 30 years specializing in systems technology management and computer security. As a Technology Specialist, Systems Manager and CIO for large international corporations, and as Consulting Director of hundreds of Systems and Technology projects for several diverse companies, he has put many theories and creative ideas into practice. Prior to his term as the Consulting Director for M Corby & Associates, Inc., he was practice director for the IT Consulting Practice of Ernst & Young, CIO for a division of Ashland Oil and the Bain & Company Consulting Group. He is a Certified Information Systems Security Professional (CISSP) and Certified Computer Professional (CCP). In 1994, the Computer Security Institute awarded Mike the *Lifetime Achievement Award*.

### **Speaker Contact Info:**

Michael J. Corby, CCP, CISSP  
255 Park Avenue  
Worcester, MA 01609  
Phone (508) 792-4320  
Fax: (508) 792-4327  
**E-Mail: mcorby@mcorby.com**

# Authentication - "I know you!"

Michael J. Corby, CCP, CISSP  
M Corby & Associates, Inc. USA



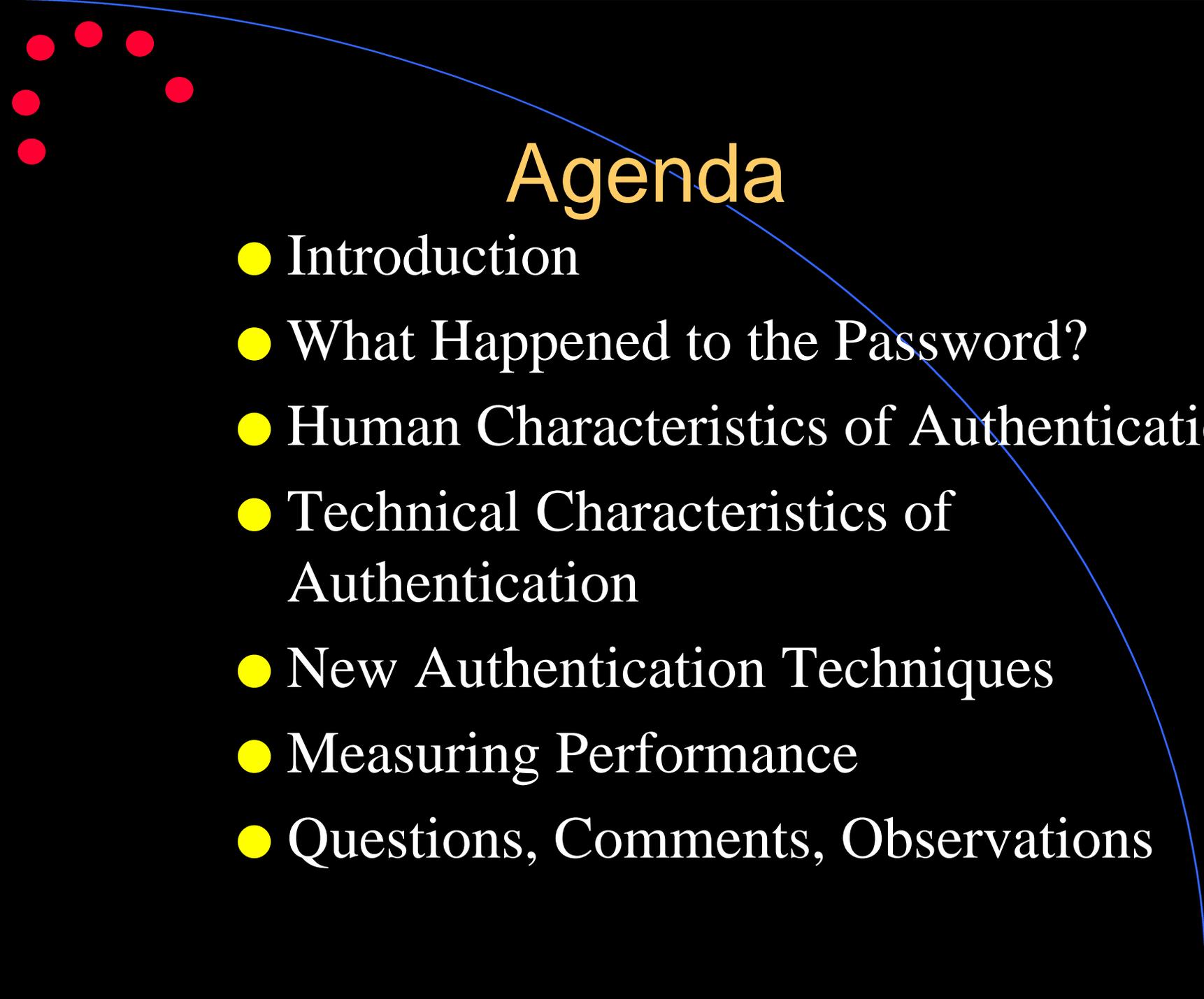
# Approach

- It has been said that passwords are passé. What are we going to do? Authentication tokens, single use passwords, voiceprint, face recognition and hand/finger scanning are becoming the latest rage in user authentication. This session will touch on benefits, drawbacks and some internal issues that make these concepts viable. We will also look at some of the emerging products in this technology.

# Introduction

## About the Session Leader:

- Mr. Corby is presently Consulting Director of M Corby & Associates, Inc. He has over 30 years of experience in systems operations, technology management, application design and strategic planning.
- In 1992 he was the first ever recipient of the CSI lifetime achievement Award.



# Agenda

- Introduction
- What Happened to the Password?
- Human Characteristics of Authentication
- Technical Characteristics of Authentication
- New Authentication Techniques
- Measuring Performance
- Questions, Comments, Observations



# Introduction

- Security has never been popular
- Users tire of remembering, changing passwords
- Auditors look for passwords scribbled on sticky notes and desk pads
- Few people believe security affects them.
- New techniques must be found to solve the password malaise

# What Happened to the Password?

- Multiple Systems
  - Different rules
  - Different security groups in command
- Password guessing
  - Processing advancements
  - Social Engineering
- Universal Computing
  - Computer access no longer a privilege
  - More people = more chances for leaks

# Human Characteristics

- Knowledge and memory
  - Things I have or people I know
  - strange combinations familiarized over time
- “Difficult to duplicate” physical factors
  - Fingerprints
  - Facial Images
  - Retinal blood vessels
  - Voice
- Behavioral factors
  - handwriting
  - known regular activities and patterns

# Technical Characteristics

- Data Collection
  - New hardware devices
  - Existing devices
- Data Analysis
  - Speed of access
  - Distributed processing
- Number of data points to define uniqueness
- Fail safe or fail soft operation
- Time to compare stored with given key

# New Authentication Techniques

- One time Passwords
- Tokens or smart devices
- Biometrics
- Anything Else?

# One time Passwords

- Methods for generating
  - Algorithm known by the System & User
  - Explicit request to change
- Strengths
  - knowledge by observation is useless
  - Violations known to the user
- Weaknesses
  - Increased support for “forgotten passwords”
  - Potential algorithm errors

# Tokens or smart devices

- Methods
  - Key generated by hardware & software
- Strengths
  - knowledge by observation is useless
  - two factors: have and know
- Weaknesses
  - lost or forgotten token
  - “drift” of algorithm timing

# Biometrics

- Methods
  - Direct contact with collection device
  - Indirect contact with collection device
- Strengths
  - very costly and difficult to duplicate
  - two factors: know and are
- Weaknesses
  - can be expensive to implement
  - perception that it replaces authentication

# Definition of Biometrics

- *Biometrics is the measurement of a person's physical characteristics for future comparison and possible authentication.*
- Note:
  - Measurement
  - Comparison
  - Authentication

# “BioDynamics” or variable biometrics

- Static Biometrics can have weaknesses
  - can be digitally duplicated
  - Intolerant of changes in physiology
- Dynamic Biological factors
  - Daily voice changes, appearance changes
  - Handwriting patterns

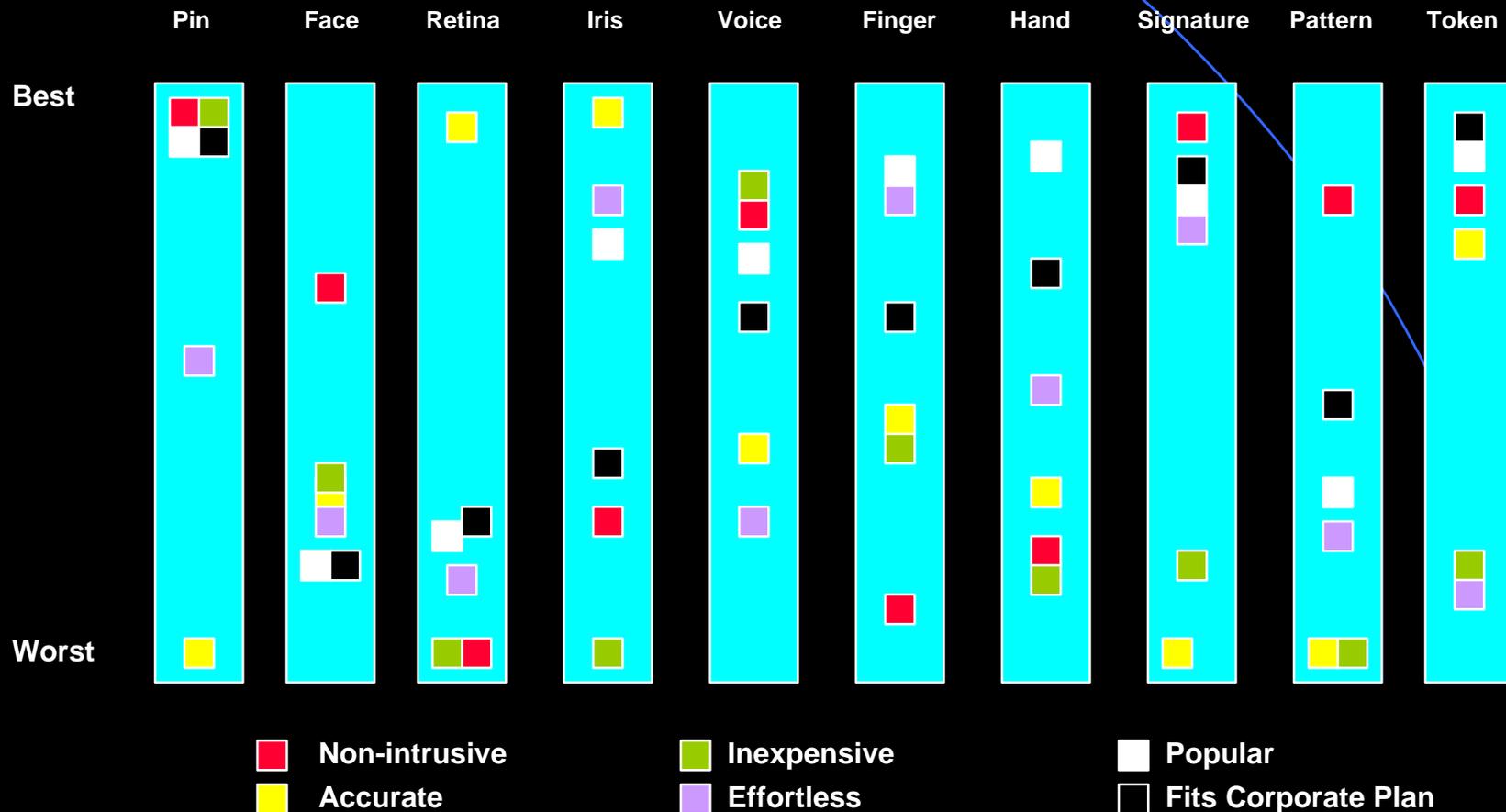
# Measuring Performance

- Compute Intensive technology
  - More data points, more scrutiny, but not more accuracy
  - Algorithms of recognition important
- Application dependent
  - False acceptance/rejection may not be acceptable
  - Traditional fall-back

# Summary

- Future authentication must provide an alternative to “What you know”
- Avoid methods unfriendly to the public.
- Technology tends to using existing devices.
- In some applications, biometrics is easily cost justifiable.
- As methods improve, so will methods to defraud, *ad nauseum*.

# Authentication method Summary



# Anything Else?

- How do you spell Authentication?
  - DNA
  - personal habits (keying patterns)
  - Universal identity chip

# Where to get more information

- Internet: Too numerous and too frequently updated to mention
- Publications: Look for Authentication at [amazon.com](http://amazon.com) or [barnesandnoble.com](http://barnesandnoble.com)
  - **Managers Guide to Security: Authentication**  
Author: Michael J. Corby, CCP, CISSP  
Publisher: Addison Wesley due out after September 1, 1999

# Some Popular Biometric Products

- **One-on-One** Face
- **SecureTouch '97** Finger
  - Biometric Access Corp.
  - 2555 N. IH 35, Ste. 200
  - Round Rock, TX 78664
  - Phone: (512) 246-3760
  - [www.biometricaccess.com](http://www.biometricaccess.com)
- **Cyber Sign** Signature
  - Cadix International, Inc.
  - 5000 Birch St. E. Tower, Ste. 210
  - Newport Beach, CA 92660
  - Phone: (714) 223-8881
  - [www.cadix.com](http://www.cadix.com)
- **CITADEL GateKeeper** Voice
  - INTELiTRACK Technologies, Inc.
  - 9050 Capital of Texas Hwy. N., Ste. 150
  - Austin, TX 78759
  - Phone: (800) 750-6964
  - [www.intelitrack.com](http://www.intelitrack.com)
- **S<sup>2</sup> Server Series** Voice, Face, and Finger
- **VoiceGuardian™** Voice
  - Keyware Technologies
  - 500 W. Cummings Park, Ste. 3600
  - Woburn, MA 01801
  - Phone: (718) 933-1311
  - [www.keywareusa.com](http://www.keywareusa.com)

- TrueFace** Face
  - Miros, Inc.
  - 572 Washington St. #18
  - Wellesley, MA 02181
  - Phone: (718) 235-0330
  - [www.miros.com](http://www.miros.com)
- Mytec Biometric Logon** Finger
  - Touchstone™ Finger
  - Mytec Technologies, Inc.
  - 10 Gateway Blvd., Ste. 430
  - Don Mills, ON M3C 3A1 Canada
  - Phone: (416) 467-3330
  - [www.mytec.com](http://www.mytec.com)
- Numerous** Finger
  - National Registry, Inc.
  - 2502 Rocky Point Dr., Ste. 100
  - Tampa, FL 33607
  - Phone: (813) 636-0099
  - [www.nrid.com](http://www.nrid.com)
- Stoplock Blueprint** Voice & Finger
  - PCSL Div. of P.C. Security Ltd.
  - Park Creek Pl.
  - 3625 N. Hall St., Ste. 740
  - Dallas, TX 75219
  - Phone: (214) 520-2229
  - [www.pcsl.com](http://www.pcsl.com)

# More Biometric Products

- ***ID3D-R HandKey*** Hand  
Recognition Systems, Inc.  
Sub. of Harrow Products  
1520 Dell Ave.  
Cambell, CA 95008  
Phone: (408) 364-6960
- ***SecurPBX***
- ***SpeakEZ Voice Print Speaker***
- ***Verification Software Developers Kit*** Voice  
T-Netix  
67 Inverness Dr. E.  
Englewood, CO 80112  
Phone: (613) 567-6464  
[www.t-netix.com](http://www.t-netix.com)
- ***Model PG-2001*** Hand  
Talos Technology  
7412 SW Beaverton Hillsdale Hwy. 201  
Portland, OR 97225  
Phone: (503) 292-8682





# Questions, Comments, Observations

 Michael J. Corby, CCP, CISSP

M Corby & Associates, Inc.

255 Park Avenue

Worcester, MA 01609 USA

Phone: 1 (508) 792-4320 - FAX: 1 (508) 792-4327

www: <http://www.mcorby.com>

e-Mail: [mcorby@mcorby.com](mailto:mcorby@mcorby.com)

